

United States Patent and Trademark Office



UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address: COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, Virginia 22313-1450 www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. | |
|--|-----------------|----------------------|-------------------------|------------------|--|
| 10/037,258 | 10/23/2001 | Ning Lei | D-4840-CIP | 6192 | |
| 26572 7 | 7590 01/23/2004 | | EXAMINER | | |
| INTERNATIONAL TRUCK AND ENGINE CORPORATION 4201 WINFIELD ROAD P.O. BOX 1488 WARRENVILLE, IL 60555 | | | MILLER, CARL STUART | | |
| | | | ART UNIT | PAPER NUMBER | |
| | | | 3747 | | |
| | | | DATE MAILED: 01/23/2004 | 1/ | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | / |
|---|---|
| C | / |

| • | | Appl | ication No. | Applicant(s) | | | | |
|---|---|---------------------|--|--------------|--|--|--|--|
| Office Action Summary | | 10/0 | 37,258 | LEI, NING | | | | |
| | | Exar | nin r | Art Unit | | | | |
| | | Carl | S. Miller | 3747 | | | | |
| The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply | | | | | | | | |
| A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely. - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b). | | | | | | | | |
| Status | Posnonsivo to communication(s) f | iled on 14 October | . 2003 | | | | | |
| | Responsive to communication(s) filed on <u>14 October 2003</u> . | | | | | | | |
| ,— | This action is FINAL . 2b)⊠ This action is non-final. Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213. | | | | | | | |
| Dispositi | on of Claims | Alloe under Ex part | e Quayle, 1999 O.D. 11, 4 | 00 0.0. 210. | | | | |
| 5)□ 6)⊠ 7)□ | | | | | | | | |
| • | on Papers | | · | | | | | |
| 9) The specification is objected to by the Examiner. 10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d). | | | | | | | | |
| 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152. | | | | | | | | |
| Priority under 35 U.S.C. §§ 119 and 120 12) | | | | | | | | |
| Attachmen | | | _ | | | | | |
| 2) Notic | e of References Cited (PTO-892) se of Draftsperson's Patent Drawing Review mation Disclosure Statement(s) (PTO-1449) | | 4) Interview Summary 5) Notice of Informal I 6) Other: | | | | | |

Application/Control Number: 10/037,258

Art Unit: 3747

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1–4, 7, 9, and 11–14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida ('152).

In particular, Figure 1 clearly shows two independent control valves controlling movement of the pumping piston (101) and timing control through control of the timing chamber (26) pressure. Pilot and main injection are included.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 4, 7, 8, 9 and 11 – 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller ('345).

Miller teaches independent control of pumping and timing <u>and</u> includes rate shaping by controlling the release of fuel from a control chamber above the needle. The Miller outlet from the control chamber appears smaller than the opening for the control fluid going ito the pump piston.

Art Unit: 3747

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida.

In particular, since Ishida controls the start and end of both pilot and main injection it would have been obvious (if not inherent) to control the duration between the two injection events.

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Nishimura.

Ishida applies as noted and Nishimura teaches rate shaping through control of the venting of fluid from a control chamber, including the possibility of cycling the flow.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida or Miller ('345) in view of Drummond.

Ishida and Miller apply as noted above and Drummond teaches the use of a control chamber which is always open to a drain but has high pressure selectively going

Application/Control Number: 10/037,258

Art Unit: 3747

into it (to control injection timing) via an inlet control valve. Drummond is applicant's

known control chamber control.

It would have been obvious to control the timing of either Miller or Ishida as

taught by Drummond because the pump of Drummond is merely a timed mechanical

pump instead of a timed fluid-driven pump.

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Any inquiry concerning this communication should be directed to Carl Miller at

telephone number 703-308-2653.

Page 4

Primary Examiner